Utah Department of Transportation

Supplemental Drawings for

2008 Standard Specifications

FOR ROAD AND BRIDGE CONSTRUCTION

Issued September 11, 2008

Memorandum UTAH DEPARTMENT OF TRANSPORTATION

DATE: September 11, 2008

TO: Holders of Hard Copy of Standard Drawings

FROM: Barry Axelrod, CDT
Standards and Specifications

SUBJECT: Supplemental Drawing Distribution, dated September 11, 2008

Applicable files for the change are attached. Maintain these files as a supplemental update to the UDOT Standard Drawings, 2008 Edition. No pages are to be removed or replaced in the basic book, electronic or hard copy.

If you are in need of electronic copies of any Standard or Supplemental Drawing please refer to the Standards and Specifications Web site at http://www.udot.utah.gov/go/standardsandspecifications. From there select the **2008 Standards** subtopic.

If you have any questions or problems with the electronic files contact me at 801-964-4570, 801-631-8828 (cell), or by email at **baxelrod@utah.gov.**

Attachments

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UTAH DEPARTMENT OF TRANSPORTATION

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Listing of Supplemental Drawings

Issue Date: March 5, 2008

Revised February 28, 2008

CC 4	Details For Placement Crash Cushions Type A, B, and D
SL 18	Single Transformer Substation Details
SN 14C	Freeway Sign Foundation And Fuse Plate Requirements
ST 5	Painted Median And Auxiliary Lane Details

Issue Date: May 8, 2008

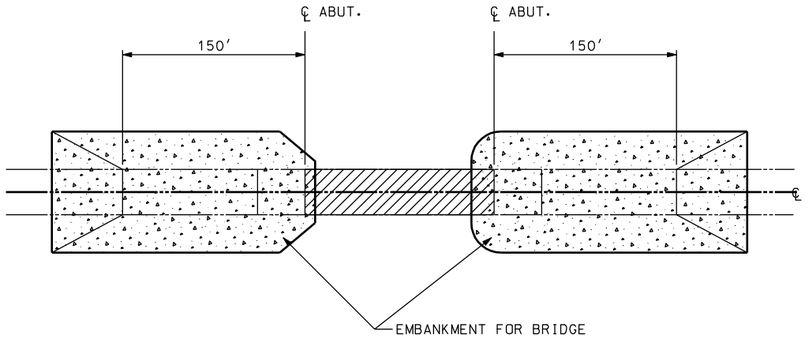
Revised April 24, 2008

CC 7B	Crash Cushion Type F BEAT-SSCC
DD 11	Rural Multi Lane Highways Other Than Freeways
DD 16	Embankment For Bridge Replacement
DD 17	Grade Separated Arterials Other Than Freeways 50 to 60 MPH

Issue Date: September 11, 2008

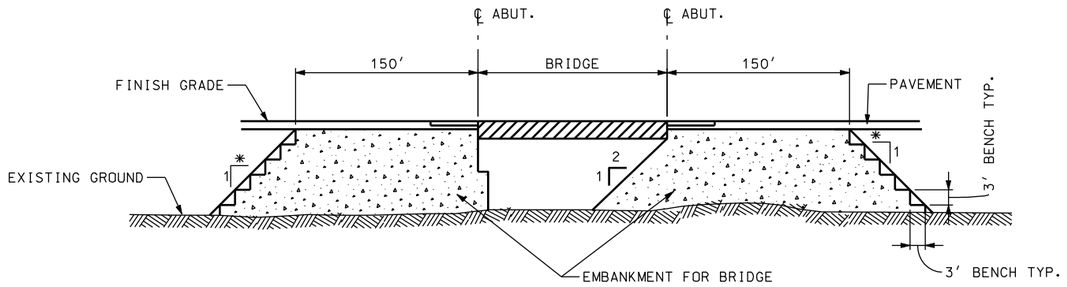
Revised August 28, 2008

DD 16	Embankment For Bridge Replacement
SN 9B	Small Sign Tubular Steel Post Base (B2A)
SN 9C	Small Sign Tubular Steel Post Base With Concrete (B2B)
TC 2A	Work Zone Channelization Devices

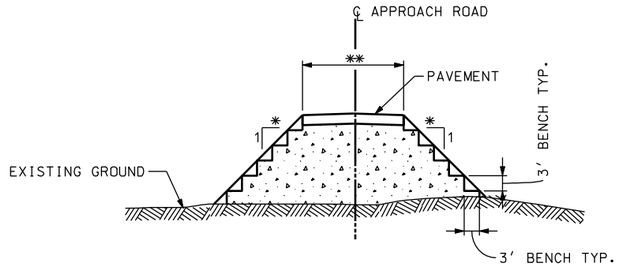


* THEORETICAL SLOPE MAXIMUM OF 1:1 TO TRANSITION BETWEEN EMBANKMENT MATERIALS.

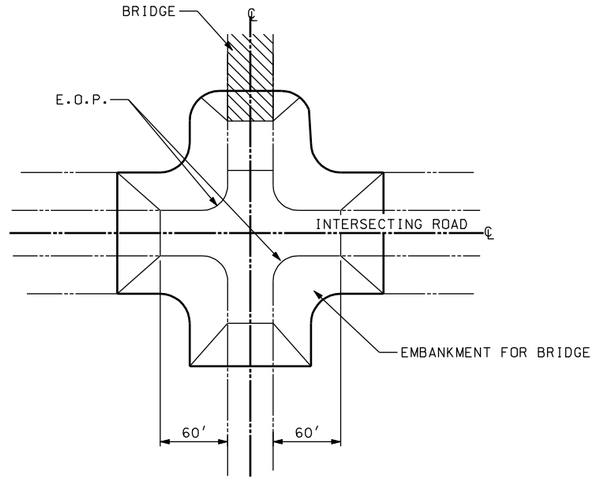
PLAN VIEW APPROACH EMBANKMENTS



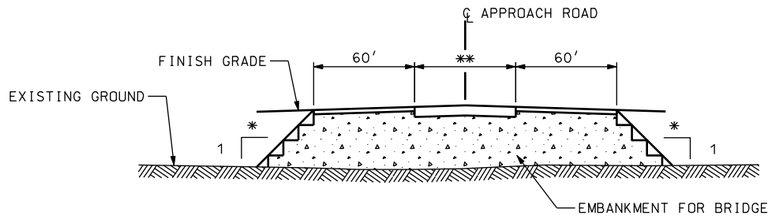
CL PROFILE VIEW APPROACH EMBANKMENTS



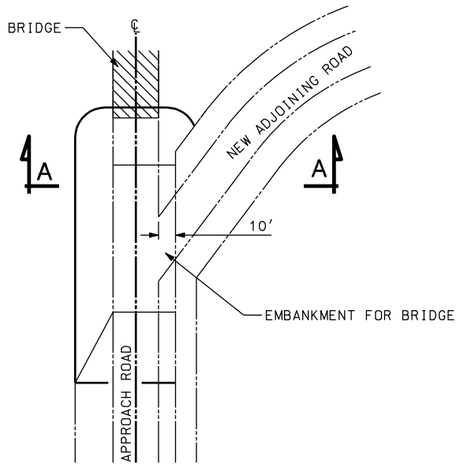
CL CROSS SECTION VIEW APPROACH EMBANKMENTS



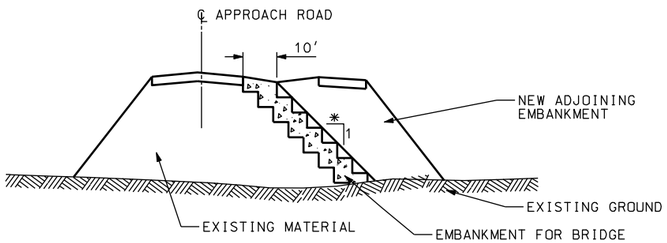
PLAN VIEW INTERSECTING ROADWAY EMBANKMENTS



CL PROFILE VIEW INTERSECTING ROADWAY EMBANKMENTS



PLAN VIEW ADJOINING EMBANKMENTS



SECTION A-A VIEW

* THEORETICAL SLOPE MAXIMUM OF 1:1 TO TRANSITION BETWEEN EMBANKMENT MATERIALS.

** INDICATES EDGE OF PAVEMENT TO EDGE OF PAVEMENT DIMENSION.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	04/24/08	RM	CORRECTED EMBANKMENT LOCATION.
2	08/28/08	LM	ADDED CL CROSS SECTION DETAIL.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — AUG.28.2008 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — AUG.28.2008 DATE
DEPUTY DIRECTOR

EMBANKMENT FOR BRIDGE PLACEMENT

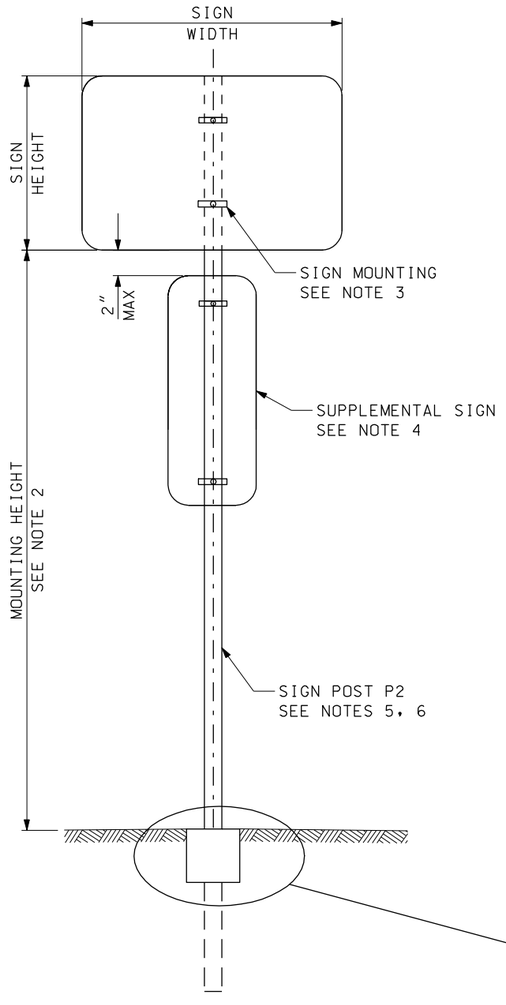
STANDARD DRAWING TITLE

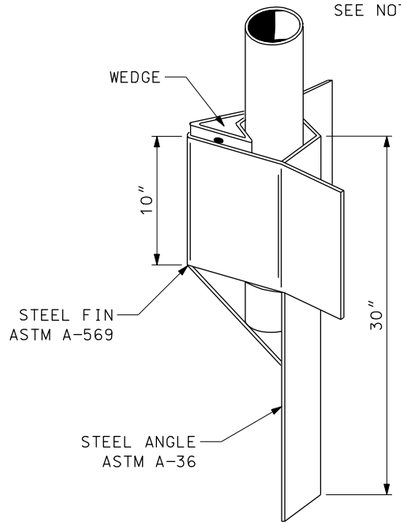
STD DWG
DD 16

SMALL SIGN TUBULAR STEEL POST BASE (B2A)

(TRIANGULAR STEEL ANCHOR SYSTEM)

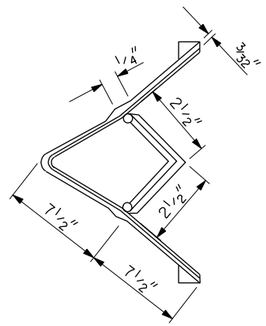
(SINGLE POST APPLICATION ONLY)



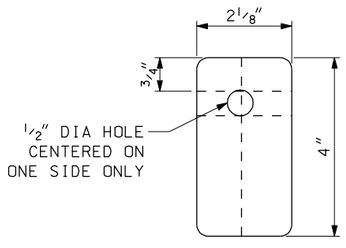


TRIANGULAR STEEL SIGN POST ANCHOR

GALVANIZE AFTER FABRICATION

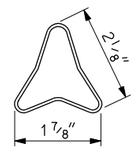


TOP VIEW

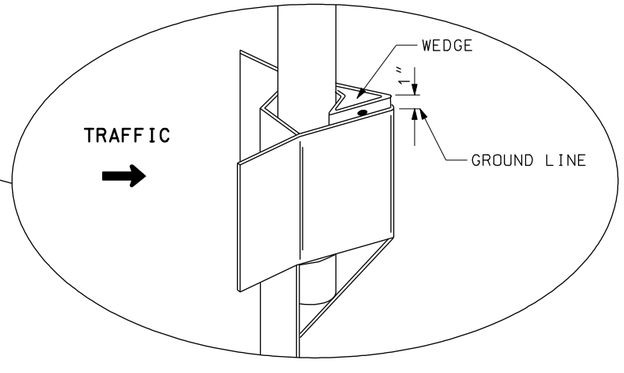


SIDE VIEW

WEDGE



TOP VIEW



POST SELECTION GUIDE *

SIGN HEIGHT(FT.) \ SIGN WIDTH (FT.)	1	2	2.5	3
1	P2	P2	P2	P2
2	P2	P2	P2	P2
2.5	P2	P2	P2	P2
3	P2	P2	P2	
4	P2	P2		

* POST SELECTION GUIDE ASSUMES A 7' MOUNTING HEIGHT FROM BOTTOM OF SIGN. MAXIMUM MOUNTING HEIGHT 8 FEET. IF MOUNTING HEIGHT REQUIREMENTS ARE GREATER, ANOTHER SIGN BASE OPTION IS REQUIRED.

POST SIZE AND SIGN SIZE DETERMINED BY BASE MANUFACTURER'S WIND LOADING REQUIREMENTS.

POST DETAIL CHART (SINGLE POST ONLY)

POST TYPE	OUTSIDE DIAMETER	WALL THICKNESS (GAUGE)	MATERIAL AND COATING REQUIREMENTS
P2	2 3/8"	0.095" (13 GAUGE)	ASTM-513 GALVANIZED TO MEET ASTM A-653-G90
DO NOT USE "T" OR "U" BRACKET			

POST NOTES:

POSTS PRE-PUNCHED WITH 3/8" HOLES, MOUNT SIGN DIRECTLY TO POST OR USE AN APPROVED MOUNTING CLAMP. SPACING OF HOLES FROM TOP IN INCHES ARE AS FOLLOWS:

1",3",10",16",21",23",24",27",33",37",39" AND 45"

DRIVE ANCHOR INSTALLATION NOTES:

1. DRIVE POST ANCHOR FLUSH WITH GROUND LINE. ORIENT ANCHOR SO WEDGE INSTALLATION IS TOWARDS OPPOSING TRAFFIC.
2. INSTALL WEDGE WITH 1" MAX EXPOSURE TO TOP OF ANCHOR.

NOTES:

1. USE TRIANGULAR POST ANCHOR IN DENSE OR STIFF SOILS ONLY. USE BASE B1 STD DWG SN 9A OR BASE B2B STD DWG SN 9C WHEN LOOSE OR SOFT SOILS ARE ENCOUNTERED.
2. REFER TO STD DWG SN 7 FOR MOUNTING HEIGHT AND OFFSET REQUIREMENTS.
3. REFER TO STD DWG SN 13A FOR SIGN MOUNTING REQUIREMENTS.
4. WHEN INSTALLING A SUPPLEMENTAL SIGN DO NOT EXCEED MAXIMUM SQUARE FOOTAGE OF POST REQUIREMENTS BY MORE THAN 25%. (EX: POST P2 MAX. SIGN SIZE 2'W x 4'H=8 SQ.FT. + 25%=10 SQ.FT.=(2'W x 4'H)+(1'W x 2'H)=10).
5. DO NOT USE "T" OR "U" BRACKET WITH THIS SIGN BASE.
6. USE OF YELLOW POSTS FOR LEFT SIDE (MEDIAN) INSTALLATION OR FOR LOCATIONS WITH A HIGH PROBABILITY OF BEING IMPACTED IS PERMITTED WHEN APPROVED BY REGION TRAFFIC ENGINEER.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	08/28/08	MD	CHANGED TRAFFIC FLOW DIRECTION AND UPDATED NOTE 1 ON DRIVE ANCHOR DETAIL TO MEET MANUFACTURERS SPECIFICATIONS. CORRECTED DRIVE ANCHOR DETAIL.

UTAH DEPARTMENT OF TRANSPORTATION

STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION

SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — AUG.28.2008 DATE

CHAIRMAN STANDARDS COMMITTEE

APPROVED — AUG.28.2008 DATE

DEPUTY DIRECTOR

SMALL SIGN TUBULAR STEEL POST BASE (B2A)

STANDARD DRAWING TITLE

STD DWG

SN 9B

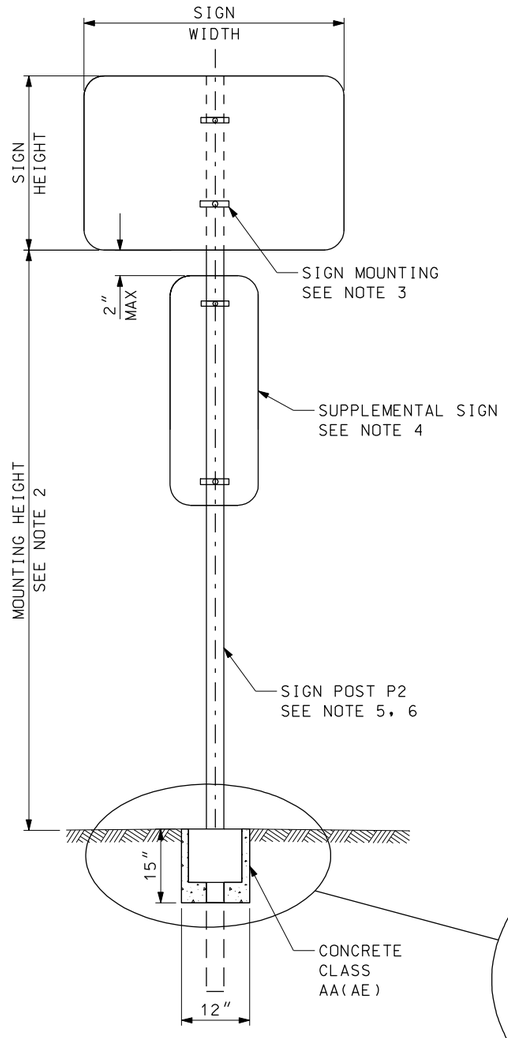
DGN File:L:\Standard_Drawings\Imperial\2008Approved\x_Supplemental_Issues\xSupp3Approved\SN9Bdgn

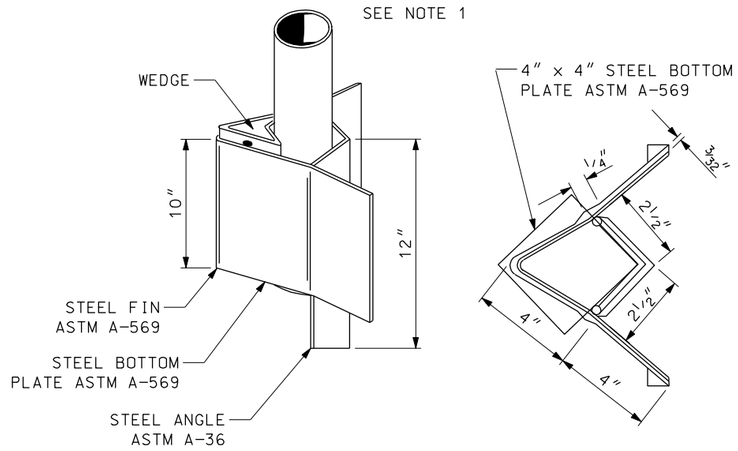
08-SEP-2008

SMALL SIGN TUBULAR STEEL POST BASE FOR CONCRETE (B2B)

(TRIANGULAR STEEL ANCHOR SYSTEM IN CONCRETE)

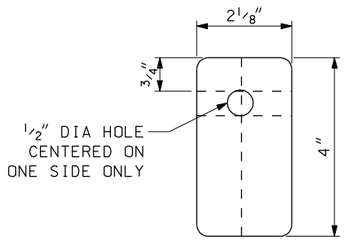
(SINGLE POST APPLICATION ONLY)

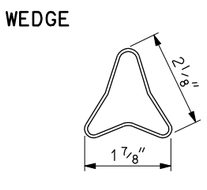


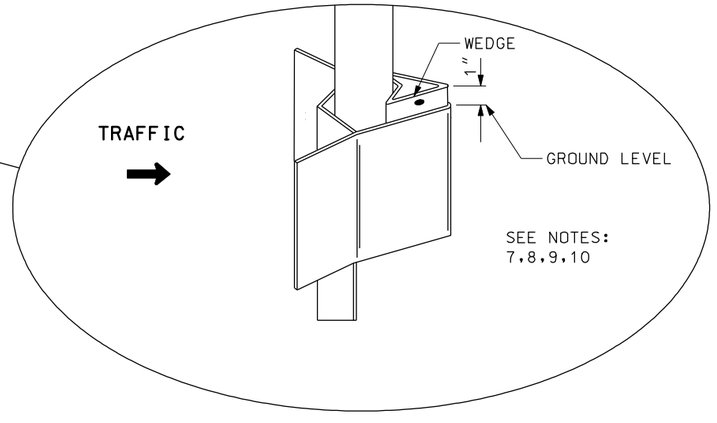


TRIANGULAR STEEL SIGN POST ANCHOR

GALVANIZE AFTER FABRICATION







POST NOTES:

POSTS PRE-PUNCHED WITH 3/8" HOLES, MOUNT SIGN DIRECTLY TO POST OR USE AN APPROVED MOUNTING CLAMP. SPACING OF HOLES FROM TOP IN INCHES ARE AS FOLLOWS:

1",3",10",16",21",23",24",27",33",37",39" AND 45"

POST SELECTION GUIDE *

SIGN HEIGHT(FT.) \ SIGN WIDTH (FT.)	1	2	2.5	3
1	P2	P2	P2	P2
2	P2	P2	P2	P2
2.5	P2	P2	P2	P2
3	P2	P2	P2	
4	P2	P2		

* POST SELECTION GUIDE ASSUMES A 7' MOUNTING HEIGHT FROM BOTTOM OF SIGN. MAXIMUM MOUNTING HEIGHT 8 FEET. IF MOUNTING HEIGHT REQUIREMENTS ARE GREATER, ANOTHER SIGN BASE OPTION IS REQUIRED.

POST SIZE AND SIGN SIZE DETERMINED BY BASE MANUFACTURER'S WIND LOADING REQUIREMENTS.

POST DETAIL CHART (SINGLE POST ONLY)

POST TYPE	OUTSIDE DIAMETER	WALL THICKNESS (GAUGE)	MATERIAL AND COATING REQUIREMENTS
P2	2 3/8"	0.095" (13 GAUGE)	ASTM-513 GALVANIZED TO MEET ASTM A-653-G90
DO NOT USE "T" OR "U" BRACKET			

NOTES:

1. USE TRIANGULAR ANCHOR WITH CONCRETE IN ALL SOIL TYPES WHEN A CONCRETE BASE IS DESIRED OR PLACED IN CONJUNCTION WITH AN ISLAND OR SIDEWALK.
2. REFER TO STD DWG SN 7 FOR MOUNTING HEIGHT AND OFFSET REQUIREMENTS.
3. REFER TO STD DWG SN 13A FOR SIGN MOUNTING REQUIREMENTS.
4. WHEN INSTALLING A SUPPLEMENTAL SIGN DO NOT EXCEED MAXIMUM SQUARE FOOTAGE OF POST REQUIREMENT BY MORE THAN 25%. (EX: POST P2 MAX. SIGN SIZE 2'W x 4'H=8 SQ.FT. + 25%=10 SQ.FT.=(2'W x 4'H)+(1'W x 2'H)=10).
5. DO NOT USE "T" OR "U" BRACKET WITH THIS SIGN BASE.
6. USE OF YELLOW POSTS FOR LEFT SIDE (MEDIAN) INSTALLATION OR FOR LOCATIONS WITH A HIGH PROBABILITY OF BEING IMPACTED IS PERMITTED WHEN APPROVED BY REGION TRAFFIC ENGINEER.
7. INSTALL ANCHOR FOUNDATION AT TOP OF FINISHED GRADE. DO NOT INSTALL ANCHOR PRIOR TO COMPLETION OF FINISHED GRADE.
8. INSTALL ON ISLAND OR SIDEWALK WHEN FINISHED SURFACE IS COMPLETED. CORE DRILLING OF ISLAND OR SIDEWALK REQUIRED.
9. PLACE FOUNDATION AND POST ANCHOR FLUSH WITH FINISHED SURFACE.
10. FINISH WEDGE 1" MAX ABOVE TOP OF ANCHOR.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	08/28/08	MD	CHANGED TRAFFIC FLOW DIRECTION ON POST ANCHOR DETAIL TO MEET MANUFACTURERS SPECIFICATIONS. CORRECTED POST ANCHOR DETAIL.

UTAH DEPARTMENT OF TRANSPORTATION

STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION

SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — AUG.28,2008 DATE

CHAIRMAN STANDARDS COMMITTEE

APPROVED — AUG.28,2008 DATE

DEPUTY DIRECTOR

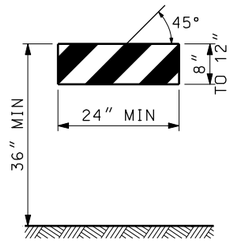
SMALL SIGN TUBULAR STEEL POST BASE WITH CONCRETE (B2B)

STANDARD DRAWING TITLE

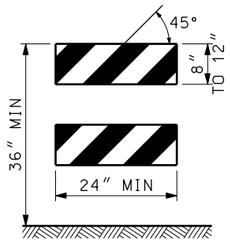
STD DWG SN 9C

DGN File:L:\Standard_Drawings\Imperial\2008Approved\x_Supplemental_Issues\xSupp3Approved\SN9C.dgn

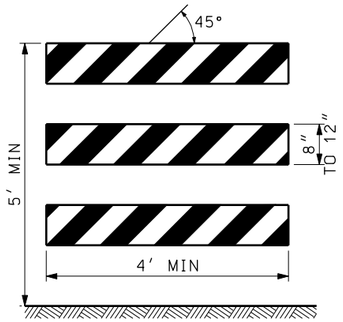
08-SEP-2008



TYPE I BARRICADE



TYPE II BARRICADE



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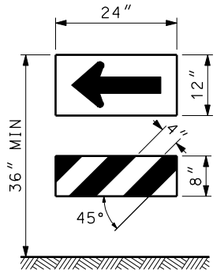
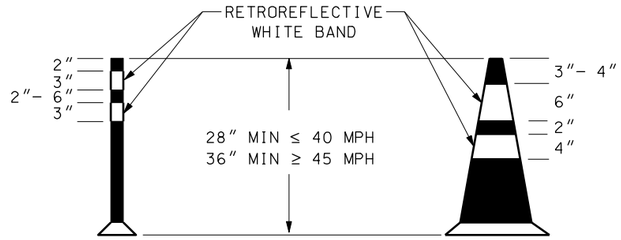


DIRECTION INDICATOR BARRICADE

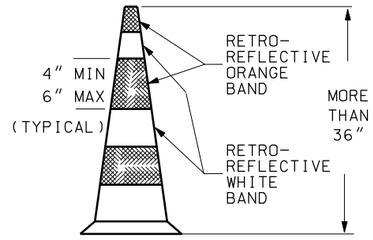
BARRICADES

NOTES 1,2,6



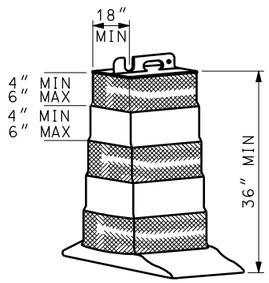
TUBULAR MARKERS

DAYLIGHT HOURS ONLY
SEE NOTE 5

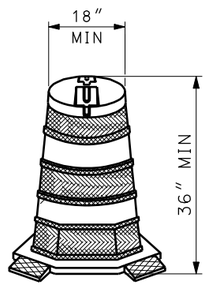


CONES

NOTES 5,7,8,9,10,11



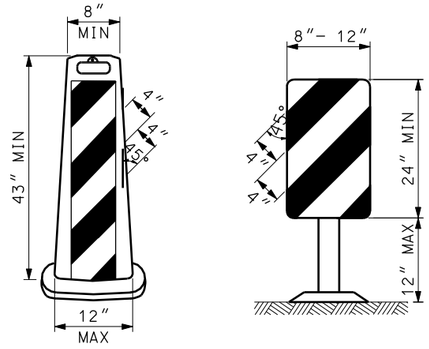
ONE-PIECE RECTANGULAR
W/RETROREFLECTIVE BANDS



TWO-PIECE ROUND
W/RETROREFLECTIVE BANDS

PLASTIC DRUMS

SEE NOTES 3,5,9



VERTICAL PANELS

SEE NOTE 1

NOTES:

1. USE A MINIMUM OF 270 SQUARE INCHES OF RETROREFLECTIVE MATERIAL PLACED ON BARRICADES AND VERTICAL PANELS WHEN USED ON FREEWAYS OR ROADWAYS WITH A POSTED SPEED GREATER THAN 45 MPH. PLACE BARRICADES AND VERTICAL PANELS IN SUCH A MANNER THAT THEY ARE VISIBLE TO APPROACHING TRAFFIC.

2. USE SANDBAGS WITH SAND OR OTHER COMPARABLE SOFT MATERIAL AS BALLAST. DO NOT PLACE BALLAST HIGHER THAN 12 INCHES ABOVE THE ROADWAY AND DO NOT COVER ANY REFLECTIVE AREA OF RAILS OR SIGNS.

3. USE PLASTIC DRUMS OR DIRECTIONAL BARRICADES AS LANE CLOSURE TAPER DEVICES FOR SPEEDS 50 MPH AND GREATER.

4 USE TUBULAR MARKERS FOR DAY-TIME USE ONLY.

5. WHEN DRUMS, CONES, OR TUBULAR MARKERS ARE USED TO CHANNELIZE PEDESTRIANS, LOCATE THEM SUCH THAT THERE ARE NO GAPS BETWEEN THE BASES OF THE DEVICES IN ORDER TO CREATE A CONTINUOUS BOTTOM, AND THE HEIGHT OF EACH INDIVIDUAL DRUM, CONE, OR TUBULAR MARKER IS NO LESS THAN 36 INCHES TO BE DETECTABLE TO USERS OF LONG CANES. WHEN BARRICADES ARE USED TO CHANNELIZE PEDESTRIANS, THE BOTTOM OF THE BOTTOM RAIL WILL BE NO HIGHER THAN 6 INCHES OFF THE GROUND IN ADDITION TO THE ABOVE REQUIREMENTS.

6. USE A DIRECTION INDICATOR BARRICADE WITH A ONE-DIRECTION LARGE ARROW (W1-6) SIGN MOUNTED ABOVE A DIAGONAL STRIPED, HORIZONTALLY ALIGNED, RETROREFLECTIVE RAIL.

7. USE REFLECTORIZED CONES DURING NIGHTTIME FOR MAXIMUM VISIBILITY.

8. PROVIDE RETROREFLECTORIZATION OF CONES THAT ARE 28 TO 36 INCHES IN HEIGHT BY USING A 6 INCH WIDE WHITE BAND LOCATED 3 TO 4 INCHES FROM THE TOP OF THE CONE AND AN ADDITIONAL 4 INCH WIDE WHITE BAND LOCATED APPROXIMATELY 2 INCHES BELOW THE 6 INCH BAND.

9. PROVIDE RETROREFLECTORIZATION OF CONES THAT ARE MORE THAN 36 INCHES IN HEIGHT BY USING HORIZONTAL, CIRCUMFERENTIAL, ALTERNATING ORANGE AND WHITE RETROREFLECTIVE STRIPES THAT ARE 4 TO 6 INCHES WIDE. USE A MINIMUM OF TWO ORANGE AND TWO WHITE STRIPES FOR EACH CONE, WITH THE TOP STRIPE BEING ORANGE. DO NOT EXCEED 3 INCHES IN WIDTH FOR ANY NON- RETROREFLECTIVE SPACES BETWEEN THE ORANGE AND WHITE STRIPES

10. DO NOT USE CONES DURING NIGHTTIME ON FREEWAYS, DIVIDED HIGHWAYS, OR ROADS WITH A SPEED OF 55 MPH OR GREATER. THIS RESTRICTION DOES NOT APPLY TO PAVEMENT MARKING OPERATIONS.

11. DO NOT USE CONES FOR LONG TERM STATIONARY OPERATIONS. CONES WILL BE REMOVED FROM THE ROADWAY AT THE END OF EACH WORKDAY, WITH THE FOLLOWING EXCEPTION:

    CONES MAY BE USED FOR UP TO 3 DAYS/2 NIGHTS FOR OPERATIONS WHERE WORKERS ARE CONTINUALLY PRESENT AND WORK IS ACTIVELY UNDERWAY. CONES WILL BE REPLACED WITH VERTICAL PANELS, DRUMS, AND/OR BARRICADES WHEN WORKERS ARE NO LONGER PRESENT, OR WHEN WORK EXTENDS THROUGH ADDITIONAL NIGHTS.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	08/28/08	MD	REVISED LEFT VERTICAL PANEL DETAIL TO MEET 270 SQUARE INCH RULE IN NOTE 1.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — AUG.28.2008 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — AUG.28.2008 DATE
DEPUTY DIRECTOR

WORK ZONE CHANNELIZATION DEVICES

STANDARD DRAWING TITLE

STD DWG
TC 2A

DGN File:L:\Standard_Drawings\Imperial\2008Approved\x_Supplemental_Issues\xSupp3Approved\TC02A.dgn
08-SEP-2008